

**IN THE CLAIMS:**

Please substitute the following claims for the same-numbered claims in the application:

1. (Currently Amended) A method for optimal clustering of master-slave ad-hoc wireless network, comprising:

assigning master or slave status to each node and connecting slave nodes to master nodes to form subgroups based on defined optimization parameters comprising ~~any of~~ an amount of neighbor nodes of each said node, and power consumption of said node, and maintenance overhead associated with said node;

interconnecting said subgroups to form a single cluster either by connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup where possible, or by connecting two adjacent master nodes together or by converting a slave node at the boundary to a master and linking it to the slave nodes or master nodes in the adjacent subgroups.

2. (Previously Presented) The method as claimed in claim 1, wherein each node is assigned master or slave based on a degree of connectivity of said node with other unassigned nodes.

3. (Previously Presented) The method as claimed in claim 1, wherein said assignment is implemented by a single entity located either within the cluster as one of the nodes or outside the cluster.

4. (Previously Presented) The method as claimed in claim 1, wherein the formation of

clusters and interconnection between the said clusters is based on weight associated with each node in the network where the weight of a node depends upon the number of nodes in its neighborhood.

5. (Previously Presented) The method as claimed in claim 1, is applied to the formation of a scatternet in a Bluetooth network.

6. (Previously Presented) The method as claimed in claim 1, wherein activities in the assigning and interconnecting steps are carried out in a distributed manner at each node further comprising:

assigning master or slave status to itself by each node based on the master or slave or unassigned status of all neighboring connected nodes,  
forming subgroups around each master node,  
merging said subgroups by forming slave-slave bridges or slave-master bridges or master-master bridges wherever possible or by forming additional masters where necessary.

7. (Previously Presented) The method as claimed in claim 6, is applied to the formation of a Bluetooth scatternet.

8. (Currently Amended) A system for optimal clustering of master-slave ad-hoc wireless network, comprising:

means for assigning master or slave status to each node and connecting slave nodes to master nodes to form subgroups based on defined optimization parameters comprising any of an

amount of neighbor nodes of each said node, and a power consumption of said node, and maintenance overhead associated with said node;

means for interconnecting said subgroups to form a single cluster either by connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup where possible, or by connecting two adjacent master nodes together or by converting a slave node at the boundary to a master and linking it to the slave nodes or master nodes in the adjacent subgroups.

9. (Previously Presented) The system as claimed in claim 8, wherein means for assigning master or slave status to each node is based on a degree of connectivity of said node with other unassigned nodes.

10. (Previously Presented) The system as claimed in claim 8, wherein means to implement the said assignment is carried out by a single entity located either within the cluster as one of the nodes or outside the cluster.

11. (Previously Presented) The system as claimed in claim 8, wherein the formation of clusters and means for interconnection between the clusters is based on weight associated with each node in the network where the weight of a node depends upon the number of nodes in its neighborhood.

12. (Previously Presented) The system as claimed in claim 8, is used for the formation of a scatternet in a Bluetooth network.

09/898,162.

13. (Previously Presented) The system as claimed in claim 8, wherein said means for assigning and said means for interconnecting operate in a distributed manner at each node, wherein said system further comprises:

means for assigning master or slave status to itself by each node based on the master or slave or unassigned status of all neighboring connected nodes,

means for forming subgroups around each master node,

means for merging said subgroups by forming slave-slave bridges or slave-master bridges or master-master bridges wherever possible or by forming additional masters where necessary.

14. (Previously Presented) The system as claimed in claim 13, is used for the formation of a Bluetooth scatternet.

15. (Currently Amended) A computer program product comprising computer readable program code stored on a computer program readable storage medium embodied therein for optimal clustering of master-slave ad-hoc wireless network, comprising:

computer readable program code means configured for assigning master or slave status to each node and connecting slave nodes to master nodes to form subgroups based on defined optimization parameters comprising any of an amount of neighbor nodes of each said node, ~~and a~~ power consumption of said node, and maintenance overhead associated with said node;

computer readable program code means configured for interconnecting said subgroups to form a single cluster either by connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup where possible, or by connecting two adjacent master nodes

together or by converting a slave node at the boundary to a master and linking it to the slave nodes or master nodes in the adjacent subgroups.

16. (Previously Presented) The computer program product as claimed in claim 15, wherein computer readable program code means configured for assigning master or slave status to each node is based on a degree of connectivity of said node with other unassigned nodes.

17. (Previously Presented) The computer program product as claimed in claim 15, wherein computer readable program code means configured to implement the said assignment is carried out by a single entity located either within the cluster as one of the nodes or outside the cluster.

18. (Previously Presented) The computer program product as claimed in claim 15; wherein the formation of clusters and computer readable program code means configured to interconnect between the clusters is based on weight associated with each node in the network where the weight of a node depends upon the number of nodes in its neighborhood.

19. (Previously Presented) The computer program product as claimed in claim 15, is configured for the formation of a scatternet in a Bluetooth networks.

20. (Previously Presented) The computer program product as claimed in claim 15, wherein said computer readable program code means configured for assigning and said computer readable program code means configured for interconnecting operate in a distributed manner at each node, wherein said computer program product further comprises:

09/898,162

6

computer readable program code means configured for assigning master or slave status to itself by each node based on the master or slave or unassigned status of all neighboring connected nodes,

computer readable program code means configured for forming subgroups around each master node,

computer readable program code means configured for merging said subgroups by forming slave-slave bridges or slave-master bridges or master-master bridges wherever possible or by forming additional masters where necessary.

21. (Previously Presented) The computer program product as claimed in claim 20, is configured for the formation of a Bluetooth scatternet.